



PCT10

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002  
TIME: 15:49:28

Input Set : N:\jumbos\huge\10018009.raw  
Output Set: N:\CRF3\05212002\J018009.raw

**Does Not Comply  
Corrected Diskette Needed**

3 <110> APPLICANT: DSM N.V.  
5 <120> TITLE OF INVENTION: Genes encoding enzymes in the biosynthetis of pimaricin and applications  
6 thereof  
8 <130> FILE REFERENCE: S-2959  
10 <140> CURRENT APPLICATION NUMBER: US/10/018,009  
11 <141> CURRENT FILING DATE: 2002-04-16  
13 <160> NUMBER OF SEQ ID NOS: 14  
15 <170> SOFTWARE: PatentIn Ver. 2.1

## ERRORED SEQUENCES

492 <210> SEQ ID NO: 2 1847(p.6) 4/6  
 493 <211> LENGTH: 1848  
 494 <212> TYPE: PRT  
 495 <213> ORGANISM: Streptomyces natalensis  
 497 <400> SEQUENCE: 2  
 498 Met Val Pro Val His Thr Asp Asp Tyr Ala Ile Gln Pro Pro Ala Asp  
 499 1 5 10 15  
 501 Thr Ala His Gly Gly Gly Gly Phe Thr Leu Pro Ala Val Phe Glu Ala  
 502 20 25 30  
 504 Ala Val Glu Ser Ala Pro Asp Ala Val Ala Leu Val Asp Gly Thr Val  
 505 35 40 45  
 507 Pro Gly Pro Gly Arg Met Trp Arg Ala Asp Val Asp Ala Leu Ala Arg  
 508 50 55 60  
 510 Gly Leu Gln Glu Ser Gly Ile Ala Pro Gly Asp Val Val Ala Val Arg  
 511 65 70 75 80  
 513 Leu Pro Asn Cys Gly Arg Phe Pro Thr Leu His Leu Ala Val Ala Ala  
 514 85 90 95  
 516 Val Gly Ala Val Leu Leu Pro Ile His Gln Gly Thr Pro Leu Pro Glu  
 517 100 105 110  
 519 Val Asp Ala Leu Leu Thr Arg Ala Glu Pro Ala Leu Leu Val Leu Ser  
 520 115 120 125  
 522 Ala Ala Gly Ser Asp Gly Leu Ala Thr Ala Arg Ser Leu Leu Glu Ser  
 523 130 135 140  
 525 Val Pro Ser Leu Arg Gly Val Leu Leu Ala Gly Ala Ser Gly Asp Gly  
 526 145 150 155 160  
 528 Glu Ser Gly Ser Val Gly Gly Glu Ser Gly Ser Gly Arg Arg Ser  
 529 165 170 175  
 531 Leu Asp Gly Leu Leu Ala Gly Trp Ala Gly Ser Gly Pro Arg Pro Val  
 532 180 185 190  
 534 Asp Val Thr Pro Asp Met Pro Leu Val Leu Val Pro Ser Ser Gly Thr  
 535 195 200 205

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537 Val Ser Ala Arg Pro Lys Leu Cys Val His Ser His Asp Gly Leu Leu  
 538 210 215 220  
 540 Ser Asn Thr Ala Ala Val Thr Ala Glu Ala Ala Asp Ala Phe Asp Gly  
 541 225 230 235 240  
 543 Pro Val Leu Thr Ala Cys Pro Met Thr His Leu Phe Gly Leu Gln Ser  
 544 245 250 255  
 546 Leu His Ala Ala Leu Phe Ala Ala Cys Thr Gln Val Leu Leu Thr Gly  
 547 260 265 270  
 549 Trp Asp Val Asp Arg Phe Leu Glu Gln Ala Arg Glu His Gly Pro Arg  
 550 275 280 285  
 552 Val Val Phe Ala Val Pro Ala Gln Leu Arg Asp Val Val Thr Arg Leu  
 553 290 295 300  
 555 Ala Arg Thr Gly Glu Pro Ala Gly Phe Thr Pro Tyr Gln Val Arg Thr  
 556 305 310 315 320  
 558 Ala Gly Ala Ala Val Ala Pro Ala Leu Ala Val Arg Val Arg Ala Val  
 559 325 330 335  
 561 Leu Asp Cys Glu Leu Val Val Val Trp Gly Met Ser Glu Ile Gly Thr  
 562 340 345 350  
 564 Gly Thr Arg Thr Arg Ala His His Pro Asp Gly Cys Val Gly Glu Pro  
 565 355 360 365  
 567 Val Ser Gly Val Asp Val Arg Val Val Asp Glu His Gly Gln Glu Cys  
 568 370 375 380  
 570 Ala Ala Asp Glu Arg Gly Glu Leu Gln Tyr Arg Gly Pro Gly Leu Phe  
 571 385 390 395 400  
 573 Arg Gly Tyr Phe Arg Glu Pro Glu Leu Thr Arg Ser Ala Leu Thr Asp  
 574 405 410 415  
 576 Asp Gly Trp Leu Arg Thr Gly Asp Leu Ala Thr Val Asp Ala Asp Gly  
 577 420 425 430  
 579 Val Val Val Leu His Gly Arg Ala Ala Glu Leu Ile Asn Thr Gly Gly  
 580 435 440 445  
 582 Arg Lys Phe Ser Ala Gly Glu Val Glu Gly Leu Leu Ser Gly Phe Thr  
 583 450 455 460  
 585 Asp Leu Gly Pro Leu Ala Val Val Gly Ala Pro Asp Asp Arg Leu Gly  
 586 465 470 475 480  
 588 Glu Tyr Pro Cys Leu Val Val Thr Asp His Ala Asp Gly Thr Ile Gly  
 589 485 490 495  
 591 Leu Ser Glu Val Thr Ala Phe Leu Arg Arg Leu Gly Leu Ala Asp His  
 592 500 505 510  
 594 Lys Ile Pro Leu Glu Leu Val Thr Val Arg Glu Leu Pro Phe Ser Pro  
 595 515 520 525  
 597 Ala Gly Lys Leu Asp Arg Gly Ala Leu Lys Arg Leu Leu Ala Asn Leu  
 598 530 535 540  
 600 Ala Glu Val Ser Val Pro Ala Arg Leu Gly Ala Val Pro Pro Tyr Thr  
 601 545 550 555 560  
 603 Ala Glu Glu Ala Leu Asp Leu Val Arg Asp Cys Val Gly Arg Val Leu  
 604 565 570 575  
 606 Arg Tyr Gly Gly Ala Ala Val Pro Phe Pro Pro Asp Lys Asp Phe Phe  
 607 580 585 590  
 609 Ser Pro Asp Lys Asp Phe Arg Gln Leu Gly Leu Asp Ser Ile Gly Ala

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610	595	600	605
612	Val Arg Leu Arg Asn Leu Leu Arg Glu Glu Thr Gly Leu Pro Leu Pro		
613	610	615	620
615	Ala Thr Leu Ala Phe Asp Ser Pro Thr Pro Arg Ala Val Ala Arg Val		
616	625	630	635
618	Leu Ala Glu Gln Glu Glu Pro Ser Gln Asp Glu Pro Arg Glu Asn Pro		
619	645	650	655
621	Ala Asp Gly Ala Asp Pro Val Ala Ile Val Gly Met Ala Cys Arg Leu		
622	660	665	670
624	Pro Gly Gly Ala Asp Ser Pro Asp Ala Leu Trp Glu Leu Leu Ala Asp		
625	675	680	685
627	Gly Thr Asp Ala Met Ser Pro Phe Pro Thr Asp Arg Gly Trp Asp Leu		
628	690	695	700
630	Asp Arg Leu Phe Asp Glu Asp Ala Asp Arg Pro Gly Thr Ser Tyr Ala		
631	705	710	715
633	Arg Glu Gly Gly Phe Leu His Asp Ala Gly Asp Phe Asp Ala Gly Phe		
634	725	730	735
636	Phe Gly Leu Ser Asp Gln Glu Ala Thr Ala Thr Asp Pro Gln Gln Arg		
637	740	745	750
639	Leu Leu Leu Glu Ala Ala Trp Glu Thr Phe Glu Arg Ala Gly Ile Asp		
640	755	760	765
642	Pro Gln Ser Leu Arg Gly Ser Arg Thr Gly Val Phe Thr Gly Ala Met		
643	770	775	780
645	Asp Arg Gly Tyr Gly Thr Ser Ala Ser Ala Ala Pro Ser Ala Trp Glu		
646	785	790	795
648	Ser Met Leu Ile Thr Gly Thr Ala Gly Ser Ala Val Ser Gly Arg Ile		
649	805	810	815
651	Ala Tyr Thr Tyr Gly Leu Glu Gly Pro Ala Leu Thr Val Asp Thr Ala		
652	820	825	830
654	Ser Ser Ser Ser Leu Val Ala Leu His Leu Ala Cys Arg Ser Leu Arg		
655	835	840	845
657	Ser Gly Glu Thr Asp Leu Ala Leu Ala Gly Gly Val Thr Val Met Ala		
658	850	855	860
660	Thr Pro Ala Pro Phe Ala His Phe Ser Arg Leu Arg Ala Leu Ser Pro		
661	865	870	875
663	Asp Ser Arg Ser Met Ala Tyr Ala Asp Ala Ala Asn Gly Ser Ala Trp		
664	885	890	895
666	Ser Glu Gly Ala Gly Leu Leu Leu Glu Arg Leu Ser Asp Ala Arg		
667	900	905	910
669	Arg Asn Gly His Arg Val Leu Ala Leu Val Arg Gly Ser Ala Val Asn		
670	915	920	925
672	Gln Asp Gly Ala Ser Asn Gly Leu Thr Ala Pro Ser Gly Pro Ala Gln		
673	930	935	940
675	Gln Arg Val Ile Arg Gln Ala Leu Ala Asp Ala Gly Leu Thr Pro Gln		
676	945	950	955
678	Asp Val Asp Ala Val Glu Gly His Gly Thr Gly Thr Pro Leu Gly Asp		
679	965	970	975
681	Pro Ile Glu Ala Gln Ala Leu Leu Ala Thr Tyr Gly Gln Gln Arg Pro		
682	980	985	990

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684 Val Glu Arg Pro Leu Trp Leu Gly Ser Val Lys Ser Asn Phe Gly His  
685 995 1000 1005  
687 Thr Gln Ala Ala Ala Gly Val Val Gly Val Ile Lys Thr Val Leu Ala  
688 1010 1015 1020  
690 Leu Arg His Gly Val Leu Pro Gln Thr Leu His Val Asp Ala Pro Ser  
E--> 691 025 1025 1030 1035 1040  
693 Ala Lys Val Asp Trp Ser Ala Gly Ser Val Arg Leu Leu Thr Glu Ala  
694 1045 1050 1055  
696 Arg Pro Trp Pro Arg Glu Ser Gly Arg Thr Arg Arg Ala Gly Val Ser  
697 1060 1065 1070  
699 Ser Phe Gly Leu Thr Gly Thr Asn Ala His Val Ile Leu Glu Ala  
700 1075 1080 1085  
702 Pro Gly Glu Ala Ala Ala Gly Ala Arg Ala Glu Val Pro Glu Glu Ala  
703 1090 1095 1100  
705 Arg Cys Ala Ser Ser Pro Ala Arg Leu Pro Glu Pro Pro Gly Asp Ala  
E--> 706 105 1110 1115 1120  
708 Ala Ala Pro Trp Val Leu Ser Ala Arg Ser Arg Ala Ala Leu Arg Ala  
709 1125 1130 1135  
711 Gln Ala Leu Arg Leu Ala Asp Gln Val Ala Ala Asp Pro Gly Leu Arg  
712 1140 1145 1150  
714 Ala Gln Asp Val Ala His Ala Leu Ala Thr Ser Arg Thr Leu His Arg  
715 1155 1160 1165  
717 His Arg Ala Val Val Ser Gly Ser Asp Arg Ala Gln Met Leu Ala Ala  
718 1170 1175 1180  
720 Ala Lys Arg Phe Gly Leu Gly Glu Arg Thr Ala Gly Val Thr Pro Asp  
E--> 721 185 1190 1195 1200  
723 Asp Ser Ala Pro Gly Leu Leu Ala Phe Val Phe Ser Gly Gln Gly Ser  
724 1205 1210 1215  
726 Gln Arg Ser Gly Met Gly Arg Ala Ala Ala Glu Ala Phe Pro Val Phe  
727 1220 1225 1230  
729 Gly Arg Ala Leu Gly Glu Val Cys Ala Ala Leu Asp Pro Leu Leu Thr  
730 1235 1240 1245  
732 Arg Pro Leu Thr Ser Val Met Trp Ala Ala Pro Gly Ser Glu Glu Ala  
733 1250 1255 1260  
735 Ala Arg Leu Asp Asp Thr Thr Tyr Thr Gln Pro Ala Leu Phe Ala Val  
E--> 736 265 1270 1275 1280  
738 Gln Val Ala Leu Tyr Arg Leu Phe Glu Ser Trp Gly Val Val Pro Asp  
739 1285 1290 1295  
741 Gln Leu Val Gly His Ser Val Gly Glu Ile Ser Ala Ala His Val Ala  
742 1300 1305 1310  
744 Gly Val Leu Gly Leu Arg Asp Ala Cys Thr Leu Val Ala Ala Arg Ser  
745 1315 1320 1325  
747 Arg Leu Met Gly Ala Leu Pro Pro Gly Gly Ala Met Val Ala Val Arg  
748 1330 1335 1340  
750 Ile Thr Glu Pro Glu Val Thr Pro Trp Leu Ala Glu Leu Thr Asp Glu  
E--> 751 345 1350 1355 1360  
753 Val Ser Ile Ala Ala Val Asn Gly Pro His Ser Leu Val Leu Ala Gly  
754 1365 1370 1375  
756 Ala Glu Ala Pro Leu Val Ala Leu Thr Asp Arg Leu Ala Ala Gly

(global  
error)

When numbering  
the first  
amino acid on a  
line, begin the  
number directly  
under the  
first letter of  
the amino  
acid. Leave  
a space after  
the entire  
number.

e.g. Leu |  
      1025 |  
          S | Arg  
          P |  
          a |  
          c |  
          e |

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757	1380	1385	1390
759 His Lys Thr Arg Arg Leu Met Val Ser Thr Ala Pro His Ser Pro Leu			
760 1395	1400	1405	
762 Met Asp Pro Met Leu Glu Glu Phe Arg Ala Val Val Arg Thr Leu Ser			
763 1410	1415	1420	
765 Tyr Ala Ala Pro Ala Val Pro Leu Val Ser Thr Val Thr Gly Arg Pro			
E--> 766 425	1430	1435	1440
768 Leu Thr Gly Glu Glu Ala Arg Asp Pro Asp His Trp Val Arg His Val			
769 1445	1450	1455	
771 Arg Gln Ser Val Arg Phe Lys Asp Ala Ile Gly Arg Leu Arg Asp Glu			
772 1460	1465	1470	
774 Arg Val Thr Gly Phe Leu Glu Leu Gly Ala Glu Pro Ala Leu Thr Pro			
775 1475	1480	1485	
777 Met Ile Asp Glu Cys Leu Glu Ser Ala Asp Gly Gln Pro Gly Thr Ala			
778 1490	1495	1500	
780 Leu Val Pro Ser Leu Arg Ala Gly Val Pro Glu Arg Asp Ala Leu Leu			
E--> 781 505	1510	1515	1520
783 Thr Ala Val Ala Arg Val His Ala Gln Gly Val Pro Val Asp Trp Asp			
784 1525	1530	1535	
786 Ala Val Leu Pro Gly Ala Glu Ala Ser Val Thr Val Arg Gly Leu Pro			
787 1540	1545	1550	
789 Ala Ala Asp Arg Gln Trp Phe Arg Phe Val Pro Asp Gln Gly Ala Pro			
790 1555	1560	1565	
792 Leu Thr Leu Ala Asp Arg Ser Leu His Leu Glu Gly Ala Ala His Leu			
793 1570	1575	1580	
795 Arg Asp Val Gly Gly Cys Arg Thr Ala Asp Gly Arg Trp Val Lys Met			
E--> 796 585	1590	1595	1600
798 Gly Val Leu Tyr Arg Thr Asn Asn Leu His Ala Leu Thr Asp Ala Asp			
799 1605	1610	1615	
801 Leu Ala Lys Leu Gln Arg Leu Gly Ile Arg Thr Asp Phe Asp Leu Arg			
802 1620	1625	1630	
804 Met Pro Gly Glu Arg Ala Lys Ala Pro Asn Arg Val Pro Thr Gly Ala			
805 1635	1640	1645	
807 Arg Tyr Ile Val Ala Asp Ala Phe Asp Ala His Leu Arg Asp Gly Leu			
808 1650	1655	1660	
810 Ser Leu Ser Glu Arg Asp Leu Glu Arg Leu Arg Glu Ala Arg Leu Ser			
E--> 811 665	1670	1675	1680
813 Gly Leu Asp Glu Ala Glu Gln His Ala Leu Val Leu Ala Leu Val Leu			
814 1685	1690	1695	
816 Ala Glu Thr Ser Ala Val Leu Gly Gly Gln Glu Thr Pro Gly Glu Glu			
817 1700	1705	1710	
819 Pro His Gly Glu Glu Gly His Arg Thr Phe Lys Glu Met Gly Ile Asn			
820 1715	1720	1725	
822 Ser Leu Asn Ala Val Glu Leu Arg Asn Arg Leu Ile Ala Ala Thr Asp			
823 1730	1735	1740	
825 Leu Arg Leu Pro Ala Thr Leu Val Tyr Asp Tyr Pro Thr Pro Lys Ala			
E--> 826 745	1750	1755	1760
828 Val Val Arg Leu Val Arg Glu Arg Leu Ala Arg Pro Ala Ser Pro Ala			
829 1765	1770	1775	

*Same Error*

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831 Arg Asp Val Ala Ser Val Val Ala Glu Leu Glu Ser Leu Leu Thr Ala  
832 1780 1785 1790  
834 Gly Ala Glu Val Ser Glu Glu Thr Ala Ala Arg Leu Lys Ala Val Thr  
835 1795 1800 1805  
837 Ala Val Ser Thr Gly Thr Gly Ser Gly Ser Gly Thr Gly Ala Gly  
838 1810 1815 1820  
840 Ser Gly Gly Ala Leu Asp Leu Val Ser Ala Ser Asp Glu Glu Leu Phe  
E--> 841 825 1830 1835 1840 *Same*  
843 Arg Leu Met Asp Ala Glu Ser *< last amino acid at 1847*  
E--> 844 1845  
2558 <210> SEQ ID NO: 4  
2559 <211> LENGTH: 6797 *(p.23)*  
2560 <212> TYPE: PRT  
2561 <213> ORGANISM: Streptomyces natalensis  
2563 <400> SEQUENCE: 4  
ppr 8-23  
2564 Met Ser Asn Glu Glu Lys Leu Arg Glu Tyr Leu Lys Arg Ala Ile Ala  
2565 1 5 10 15  
2567 Asp Leu His Glu Thr Arg Gln Gln Leu Asp Glu Thr Glu Ala Lys Gln  
2568 20 25 30  
2570 Arg Glu Pro Leu Ala Ile Val Ser Met Ala Cys Arg Phe Pro Gly Gly  
2571 35 40 45  
2573 Val Arg Ser Pro Glu Glu Leu Trp Glu Leu Leu Arg Asp Gly Val Asp  
2574 50 55 60  
2576 Ala Val Ser Ser Phe Pro Arg Asn Arg Gly Trp Asp Leu Asp Ala Leu  
2577 65 70 75 80  
2579 Tyr His Ser Asp Pro Ala His Gln Gly Thr Ser Tyr Ala Arg Glu Gly  
2580 85 90 95  
2582 Gly Phe Leu His Asp Ala Gly Glu Phe Asp Pro Gly Phe Gly Ile  
2583 100 105 110  
2585 Ser Pro Arg Glu Ala Leu Ala Met Asp Pro Gln Gln Arg Leu Leu Leu  
2586 115 120 125  
2588 Glu Thr Ala Trp Glu Ala Val Glu Arg Ala Gly Ile Asp Pro Glu Ser  
2589 130 135 140  
2591 Leu Ala Gly Ser Arg Thr Gly Val Phe Val Gly Thr Gly His Gly Gly  
2592 145 150 155 160  
2594 Tyr Asp Ala Glu Gly Arg Arg Arg Ala Asp Glu Val Gly Gly His Leu  
2595 165 170 175  
2597 Leu Thr Gly Asn His Ile Ser Ile Ala Ser Gly Arg Ile Ser Tyr Val  
2598 180 185 190  
2600 Leu Gly Leu Glu Gly Pro Ala Leu Thr Val Asp Thr Ala Cys Ser Ser  
2601 195 200 205  
2603 Ser Leu Val Ala Leu His Leu Ala Met His Ala Leu Arg Arg Asp Glu  
2604 210 215 220  
2606 Cys Ala Met Ala Leu Val Gly Gly Ala Thr Val Met Ser Thr Pro Gln  
2607 225 230 235 240  
2609 Met Phe Val Glu Phe Ser Arg Gln Arg Gly Leu Ala Pro Asp Gly Arg  
2610 245 250 255  
2612 Cys Lys Pro Phe Ala Ala Ala Asp Gly Thr Gly Trp Ser Glu Gly  
2613 260 265 270

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2615 Val Gly Leu Leu Leu Val Glu Arg Leu Ser Asp Ala Val Arg Asn Gly  
 2616 275 280 285  
 2618 Tyr Pro Val Leu Ala Val Leu Lys Gly Ser Ala Val Asn Gln Asp Gly  
 2619 290 295 300  
 2621 Ala Ser Asn Gly Leu Thr Ala Pro Asn Gly Pro Ser Gln Gln Arg Val  
 2622 305 310 315 320  
 2624 Ile Arg Gln Ala Leu Thr Gly Ala Gly Leu Ala Ala Ser Asp Ile Asp  
 2625 325 330 335  
 2627 Ala Val Glu Ala His Gly Thr Gly Thr Thr Leu Gly Asp Pro Val Glu  
 2628 340 345 350  
 2630 Ala His Ala Leu Leu Ala Thr Tyr Gly Gln Gln Arg Ala Ala Asp Arg  
 2631 355 360 365  
 2633 Pro Cys Gly Leu Gly Ser Met Lys Ser Asn Ile Gly His Thr Gln Ala  
 2634 370 375 380  
 2636 Ala Ala Gly Ile Ala Gly Val Met Lys Met Val Leu Ala Met Arg His  
 2637 385 390 395 400  
 2639 Gly His Leu Pro Arg Thr Leu His Leu Asp Glu Pro Thr Gly His Val  
 2640 405 410 415  
 2642 Asp Trp Ser Glu Gly Asn Ala Arg Leu Leu Ala Glu Pro Glu Pro Trp  
 2643 420 425 430  
 2645 Pro Ser Ala Gly Arg Pro Arg Arg Ala Ala Val Ser Ser Phe Gly Ile  
 2646 435 440 445  
 2648 Ser Gly Thr Asn Ala His Val Ile Leu Glu Gln Ala Pro Ala His Glu  
 2649 450 455 460  
 2651 Ala Glu Pro Ala Pro Glu Pro Ala Ala Arg Pro Gly Ala Leu Pro Trp  
 2652 465 470 475 480  
 2654 Ile Leu Ser Ala Arg Thr Glu Ala Gly Leu Arg Ala Gln Ala Asp Arg  
 2655 485 490 495  
 2657 Leu Gly Arg His Leu Arg Asp Arg Ala Asp Leu Glu Pro Ala Ala Val  
 2658 500 505 510  
 2660 Ala His Ala Leu Ala Asp Thr Arg Thr Leu Met Glu His Arg Ala Val  
 2661 515 520 525  
 2663 Val Val Ala Gly Asp Arg Glu Glu Phe Leu Arg Gly Leu Asp Ala Leu  
 2664 530 535 540  
 2666 Ala Ala Gly Arg Thr Ala Asn Gly Leu Val Ser Gly Val Ala Val Lys  
 2667 545 550 555 560  
 2669 Ala Ala Ser Ala Phe Leu Phe Ala Gly Gln Gly Ser Gln Arg Pro Gly  
 2670 565 570 575  
 2672 Met Gly Arg Glu Leu His Ala Ala His Pro Val Phe Ala Thr Ala Phe  
 2673 580 585 590  
 2675 Asp Ala Val Cys Ala Glu Leu Asp Pro His Leu Asp Arg Pro Leu Arg  
 2676 595 600 605  
 2678 Asp Ile Val Phe Ala Glu Glu Gly Ser Ala Glu Ala Ala Leu Leu Asp  
 2679 610 615 620  
 2681 Gln Thr Ala Tyr Thr Gln Ala Ala Leu Phe Ala Leu Glu Thr Ala Leu  
 2682 625 630 635 640  
 2684 Phe Arg Leu Val Glu Ser Trp Gly Val Ala Pro Arg Phe Val Ala Gly  
 2685 645 650 655  
 2687 His Ser Ile Gly Glu Leu Thr Ala Ala His Val Ser Gly Val Leu Thr

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2688	660	665	670	
2690	Leu His Asp Ala Ala Arg Leu Val Ala Ala Arg Gly Thr Leu Met Gln			
2691	675	680	685	
2693	Ala Leu Pro Ala Gly Gly Ala Met Val Ala Val Gln Ala Thr Glu Asp			
2694	690	695	700	
2696	Glu Ile Arg Glu Arg Leu Ala Gly His Glu Asp His Val Ala Leu Ala			
2697	705	710	715	720
2699	Ala Ala Asn Gly Pro Asp Ser Thr Val Ile Ser Gly Asp Glu Gln Ala			
2700	725	730	735	
2702	Val Thr Glu Ile Ala Ala His Trp Glu Ala Gln Gly Arg Arg Thr Lys			
2703	740	745	750	
2705	Arg Leu Arg Val Ser His Ala Phe His Ser Pro His Met Asp Asp Met			
2706	755	760	765	
2708	Leu Glu Asp Phe Arg Arg Val Ala Arg Gly Leu Thr Phe His Ala Pro			
2709	770	775	780	
2711	Arg Ile Pro Val Val Ser Thr Val Thr Gly Ala Leu Ala Thr Glu Asp			
2712	785	790	795	800
2714	Glu Leu Arg Ser Pro Asp Tyr Trp Val Arg Gln Val Arg Glu Thr Val			
2715	805	810	815	
2717	Arg Phe Cys Ala Ala Val Arg Thr Leu Glu Ala Glu Gly Val Thr Thr			
2718	820	825	830	
2720	Phe Val Glu Ile Gly Thr Gly Val Leu Thr Pro Met Val Gln Asp			
2721	835	840	845	
2723	Cys Leu Thr Thr Leu Glu Glu Pro Val Leu Val Pro Leu Leu Arg Thr			
2724	850	855	860	
2726	Gly Arg Pro Glu Thr Val Ala Leu Thr Glu Gly Val Ala Thr Ala Phe			
2727	865	870	875	880
2729	Val His Gly Val Pro Val Asp Arg Ser Ala Phe Pro Gly Ala Pro Gly			
2730	885	890	895	
2732	Thr Ser Arg Ala Asp Leu Pro Thr Tyr Ala Phe Gln Arg Gln Trp Tyr			
2733	900	905	910	
2735	Trp Leu Asp Pro Ala Asp His Asp Glu Gly Glu Ala Ala Ala Ala Glu			
2736	915	920	925	
2738	Ala Gly Glu Ala Gly Phe Trp Ala Ala Val Glu Arg Glu Asp Leu Gln			
2739	930	935	940	
2741	Glu Leu Ser Ala Val Leu Ala Ile Asp Gly Ser Glu Ala Asp Ser Leu			
2742	945	950	955	960
2744	Gly Ser Phe Leu Pro Thr Leu Ser Ser Trp Arg Arg Gln Arg Arg Thr			
2745	965	970	975	
2747	Gln Ala Ala Ala Asp Arg Phe Ser Tyr Arg Thr His Trp Ala Pro Arg			
2748	980	985	990	
2750	Thr Ala Ser Gly Gly Pro Thr Ala Thr Gly His Trp Leu Val Val Leu			
2751	995	1000	1005	
2753	Pro Glu Gly Gly Thr Asp Asp Pro Trp Thr Ala Arg Leu Leu Asp Ala			
2754	1010	1015	1020	
2756	Leu Asn Asp Gln Gly Leu His Thr Asp Val Arg Glu Leu Pro Ala Asp			
E--> 2757	025 / 025	1030	1035	1040
2759	His Glu Pro Asp Ala Trp Gly Arg His Pro Val Asp Gly Val Leu Cys			
2760	1045	1050	1055	

← same  
end

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Input Set : N:\jumbos\huge\10018009.raw  
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2762 Leu Leu Ala Leu Asp Glu Arg Pro Thr Arg Ser Cys Pro Pro Tyr Arg  
2763 1060 1065 1070  
2765 Arg Gly Leu Ala Ala Thr Thr Asn Ala Ala Ala Arg Pro Glu Gly Ala  
2766 1075 1080 1085  
2768 Gly Ile Gln Ala Pro Leu Trp Cys Val Thr Arg Gly Ala Val Ala Val  
2769 1090 1095 1100  
2771 Asp Arg His Glu Ala Leu Lys Ser Pro Leu Gln Ala Gln Thr Trp Gly  
E--> 2772 105 1110 1115 1120  
2774 Leu Gly Arg Val Ala Ala Leu Glu Ser Pro Gln Ser Trp Gly Gly Leu  
2775 1125 1130 1135  
2777 Ile Asp Leu Pro Asp Asn Leu Asp Gly Arg Ala Val Ser Ala Leu Leu  
2778 1140 1145 1150  
2780 Ser Thr Leu Ala Gly Glu Glu Asp Gln Val Ala Val Arg Pro Ala Gly  
2781 1155 1160 1165  
2783 Val Phe Ala Arg Arg Leu Glu Arg Ile Thr Pro Gly Gly Asp Thr Gly  
2784 1170 1175 1180  
2786 Asp Arg Trp Ser Thr His Gly Thr Val Leu Val Thr Gly Gly Thr Gly  
E--> 2787 185 1190 1195 1200  
2789 Ala Leu Gly Ala His Leu Ala His Trp Leu Ala Asp Ala Gly Ala Glu  
2790 1205 1210 1215  
2792 His Leu Val Leu Thr Gly Arg Arg Gly Pro Gln Ala Pro Gly Ala Pro  
2793 1220 1225 1230  
2795 Glu Leu Ala Ala Ala Leu Thr Asp Arg Gly Val Lys Val Thr Leu Ala  
2796 1235 1240 1245  
2798 Ala Cys Asp Ala Ala Asp Arg Asp Ala Leu Ala Ala Val Leu Ala Asp  
2799 1250 1255 1260  
2801 Ile Pro Pro His Leu Pro Leu Thr Gly Val Val His Ala Ala Gly Val  
E--> 2802 265 1270 1275 1280  
2804 Leu Asp Asp Gly Val Leu Asp Ala Leu Thr Pro Glu Arg Phe Glu Thr  
2805 1285 1290 1295  
2807 Val Leu Arg Pro Lys Ala Arg Ala Ala Gln Asn Leu His Glu Leu Thr  
2808 1300 1305 1310  
2810 Gln Asp Leu Asp Leu Asp His Phe Val Leu Phe Ser Ser Ile Val Gly  
2811 1315 1320 1325  
2813 Val Leu Gly Asn Ala Gly Gln Ala Asn Tyr Ala Ala Ala Asn Ala Tyr  
2814 1330 1335 1340  
2816 Leu Asp Ala Leu Ala Glu His Arg Leu Ala Gln Gly Leu Pro Ala Thr  
E--> 2817 345 1350 1355 1360  
2819 Ser Val Ser Trp Gly Pro Gly Gln Ala Ala Ala Trp His Asp Ser Asp  
2820 1365 1370 1375  
2822 Ala Ala Asp Arg Met Ser Arg Asp Gly Leu Leu Pro Met Ala Ala Ala  
2823 1380 1385 1390  
2825 Pro Arg Arg Arg Pro Ala Pro Ala Leu Ala Gln Gly Met Thr Gln Val  
2826 1395 1400 1405  
2828 Thr Val Ala Asp Ile Asp Trp Ser Ala Tyr Ala Pro Ala Leu Thr Ala  
2829 1410 1415 1420  
2831 Val Arg Pro Ser Pro Leu Ile Gly Asp Leu Pro Glu Ala Arg Arg Ala  
E--> 2832 425 1430 1435 1440  
2834 Leu Gly Pro Ala Glu Gly Pro Arg Arg Glu Arg Ser Pro Leu Arg Asp

*Same  
Error*

RAW SEQUENCE LISTING  
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Input Set : N:\jumbos\huge\10018009.raw  
Output Set: N:\CRF3\05212002\J018009.raw

2835	1445	1450	1455
2837 Arg Ile Gly Ala Leu Pro Pro Ala Glu Gln Glu Lys Ala Phe Leu Thr			
2838	1460	1465	1470
2840 Met Val Arg Glu Glu Ala Ala Arg Val Leu Gly His Pro Ser Pro Asp			
2841	1475	1480	1485
2843 Thr Val Asp Ala Gln Arg Ala Phe Arg Glu Gln Gly Phe Asp Ser Leu			
2844	1490	1495	1500
2846 Met Ala Val Asp Leu Arg Asn Arg Leu Ser Ala Ala Thr Gly Leu Arg			
E--> 2847 505	1510	1515	1520
2849 Leu Pro Ala Thr Leu Leu Phe Asp His Pro Thr Pro Leu Ala Ala Ala			
2850	1525	1530	1535
2852 Ala Cys Leu Arg Ser Glu Val Leu Gly Ala Ala Gly Pro Ala Thr Val			
2853	1540	1545	1550
2855 Val Gln Ala Ser Thr Ala Ala Leu Asp Glu Pro Val Ala Ile Ile Gly			
2856	1555	1560	1565
2858 Met Ala Cys Arg Phe Pro Gly Gly Val His Ser Pro Glu Ala Leu Trp			
2859	1570	1575	1580
2861 Arg Leu Leu Ala Glu Gly Gly Asp Ala Ile Thr Pro Met Pro Ala Asp			
E--> 2862 585	1590	1595	1600
2864 Arg Gly Trp Asp Leu Asp Arg Leu Tyr His Pro Asp Pro Asp His Gln			
2865	1605	1610	1615
2867 Gly Thr Ser Tyr Ala Arg Gly Gly Phe Leu Asp Gly Ala Ala Asp			
2868	1620	1625	1630
2870 Phe Asp Ala Asp Phe Phe Gly Ile Ser Pro Arg Glu Ala Leu Ala Met			
2871	1635	1640	1645
2873 Asp Pro Gln Gln Arg Leu Leu Leu Glu Thr Trp Glu Val Leu Glu Gln			
2874	1650	1655	1660
2876 Ala Gly Ile Asp Pro Glu Ser Leu Arg Gly Ser Ser Thr Gly Val Phe			
E--> 2877 665	1670	1675	1680
2879 Ala Gly Thr Asn Thr Gln Asp Tyr Gly Thr Ala Leu Asp Ala Ala Gln			
2880	1685	1690	1695
2882 Asp Glu Ala Gly Gly His Arg Leu Thr Gly Asn Ala Met Ser Val Val			
2883	1700	1705	1710
2885 Ser Gly Arg Val Ser Tyr Thr Phe Gly Phe Glu Gly Pro Ala Leu Thr			
2886	1715	1720	1725
2888 Val Asp Thr Ala Cys Ser Ser Leu Val Ala Leu His Met Ala Ala			
2889	1730	1735	1740
2891 Gln Ala Leu Arg Gln Gly Glu Cys Ser Leu Ala Val Ala Gly Gly Val			
E--> 2892 745	1750	1755	1760
2894 Thr Val Met Ala Thr Pro Ser Ser Phe Val Glu Phe Ala Arg Gln Arg			
2895	1765	1770	1775
2897 Gly Leu Ala Pro Asp Gly Arg Cys Lys Pro Phe Ala Ala Ala Asp			
2898	1780	1785	1790
2900 Gly Thr Gly Trp Ser Glu Gly Val Gly Leu Leu Leu Val Glu Arg Leu			
2901	1795	1800	1805
2903 Ser Asp Ala Arg Arg Asn Gly His Gln Val Leu Ala Val Val Arg Gly			
2904	1810	1815	1820
2906 Ser Ala Val Asn Gln Asp Gly Ala Ser Asn Gly Leu Ser Ala Pro Ser			
E--> 2907 825	1830	1835	1840

*Same*

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Input Set : N:\jumbos\huge\10018009.raw  
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2909	Gly Pro Ser Gln Gln Arg Val Ile Arg Gln Ala Leu Ala Asn Ala Arg			
2910	1845	1850	1855	
2912	Val Ala Ala Ser Glu Val Asp Ala Val Glu Ala His Gly Thr Gly Thr			
2913	1860	1865	1870	
2915	Thr Leu Gly Asp Pro Ile Glu Ala Gln Ala Leu Leu Ala Thr Tyr Gly			
2916	1875	1880	1885	
2918	Gln Glu Arg Pro Leu Leu Gly Ala Val Lys Ser Asn Leu Gly His			
2919	1890	1895	1900	
2921	Thr Gln Ala Ala Ala Gly Val Ala Gly Val Met Lys Met Val Leu Ala			
E--> 2922	905	1910	1915	1920
2924	Met Arg His Gly Met Leu Pro Arg Thr Leu His Val Asp Glu Pro Thr			
2925	1925	1930	1935	
2927	Gly His Val Asp Trp Thr Ala Gly Ala Val Glu Leu Leu Thr Glu His			
2928	1940	1945	1950	
2930	Thr Asp Trp Pro Glu Thr Gly His Pro Arg Arg Ala Ala Val Ser Ala			
2931	1955	1960	1965	
2933	Phe Gly Ile Ser Gly Thr Asn Ala His Val Val Leu Glu Leu Pro Ala			
2934	1970	1975	1980	
2936	Ala Glu Gln Pro Leu Val Glu Gln Pro Ser Ala Ala Glu Pro Asp Ala			
E--> 2937	985	1990	1995	2000
2939	Pro Ala Thr Ala Pro Asp Arg Thr Pro Thr Ala Ser Asp Gly Thr Ala			
2940	2005	2010	2015	
2942	Pro Leu Leu Leu Ser Ala Lys Ser Glu Ser Ala Leu Arg Ala Gln Ala			
2943	2020	2025	2030	
2945	Ala Arg Leu His Ser His Leu Glu Arg Asp Pro Ala Leu Arg Leu Thr			
2946	2035	2040	2045	
2948	Asp Ala Ala Tyr Thr Leu Met Thr His Arg Thr Ala Phe Ala His Arg			
2949	2050	2055	2060	
2951	Ala Ala Val Arg Ala Ala Asp His Glu Ala Ala Leu Arg Ala Leu Thr			
E--> 2952	065	2070	2075	2080
2954	Ala Leu Ala Ala Gly Glu Ala Asp Pro Ala Val Asp Thr Gly Thr Ala			
2955	2085	2090	2095	
2957	His Thr Gly Arg Asp Ala Val Leu Phe Ser Gly Gln Gly Ser Gln Arg			
2958	2100	2105	2110	
2960	Ile Gly Met Gly Arg Glu Leu Ser Gly Arg Tyr Pro Val Phe Ala Glu			
2961	2115	2120	2125	
2963	Ala Phe Asp Thr Val Cys Ala Ala Leu Asp Glu His Leu Asp Arg Pro			
2964	2130	2135	2140	
2966	Leu Arg Asp Val Val Arg Gly Glu Asp Glu Glu Leu Leu Asn Arg Thr			
E--> 2967	145	2150	2155	2160
2969	Val Tyr Ala Gln Ala Gly Leu Phe Ala Ile Glu Val Ala Leu Phe Arg			
2970	2165	2170	2175	
2972	Leu Val Glu Ser Trp Gly Val Arg Pro His Tyr Val Ala Gly His Ser			
2973	2180	2185	2190	
2975	Val Gly Glu Ile Ala Ala His Val Ala Gly Val Phe Ser Leu Ala			
2976	2195	2200	2205	
2978	Asp Ala Cys Ala Leu Val Ala Ala Arg Gly Arg Leu Met Gln Ala Leu			
2979	2210	2215	2220	
2981	Pro Ala Gly Gly Ala Met Ala Ala Ile Arg Ala Thr Glu Asp Glu Val			

*Same*

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Input Set : N:\jumbos\huge\10018009.raw  
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E--> 2980 225 2230 2235 2240  
 2984 Leu Pro His Leu Ala Asp Ser Val Ser Ile Ala Ala Val Asn Gly Pro  
 2985 2245 2250 2255  
 2987 Ser Ser Val Val Val Ser Gly Ala Glu His Ala Val Leu Ser Ile Ala  
 2988 2260 2265 2270  
 2990 Ala His Phe Glu Gly Ala Gly Arg Lys Thr Thr Arg Leu Arg Val Ser  
 2991 2275 2280 2285  
 2993 His Ala Phe His Ser Pro Leu Met Asp Pro Met Leu Ala Asp Phe Arg  
 2994 2290 2295 2300  
 2996 Ala Val Ala Glu Gly Leu Thr Tyr Gly Glu Pro Glu Leu Ala Val Val  
 E--> 2997 305 2310 2315 2320  
 2999 Ser Asn Val Thr Gly Gln Leu Ala Thr Pro Asp Gln Leu Arg Thr Pro  
 3000 2325 2330 2335  
 3002 Glu Tyr Trp Val Thr His Val Arg Ala Ala Val Arg Phe Ala Asp Gly  
 3003 2340 2345 2350  
 3005 Ile Arg Ala Leu Gly Ala Glu Gly Val Thr Arg Phe Leu Glu Leu Gly  
 3006 2355 2360 2365  
 3008 Pro Asp Gly Val Leu Ser Ala Leu Ala Arg Glu Ser Ala Pro Asp Asp  
 3009 2370 2375 2380  
 3011 Ala Val Cys Thr Pro Val Leu Arg Lys Asp Arg Ser Glu Ala Ala Thr  
 E--> 3012 385 2390 2395 2400  
 3014 Leu Leu Ala Ala Leu Thr His Leu His Val His Gly Thr Glu Ile Asp  
 3015 2405 2410 2415  
 3017 Trp Thr Ala Phe Leu Ala Gly Arg Asp Ala His Ala Val Asp Leu Pro  
 3018 2420 2425 2430  
 3020 Thr Tyr Ala Phe Gln His Gln Arg Phe Trp Pro Thr Pro Asp His Thr  
 3021 2435 2440 2445  
 3023 Arg Thr Gly Asp Leu Gly Ala Val Gly Leu Glu Ala Thr Gly His Pro  
 3024 2450 2455 2460  
 3026 Leu Leu Ser Ala Ala Val Glu Leu Pro Asp Gly Glu Gly Leu Leu Phe  
 E--> 3027 465 2470 2475 2480  
 3029 Thr Thr Arg Leu Ser Leu Gln Thr His Pro Trp Leu Ala Gly His Val  
 3030 2485 2490 2495  
 3032 Val Met Gly Ser Val Leu Leu Pro Gly Thr Ala Phe Ala Glu Leu Ala  
 3033 2500 2505 2510  
 3035 Leu Arg Ala Ala Asp Glu Val Gly Cys Asp Arg Val Asp Glu Leu Thr  
 3036 2515 2520 2525  
 3038 Leu Ala Ala Pro Leu Val Leu Pro Glu His Gly Val Gln Leu Gln  
 3039 2530 2535 2540  
 3041 Leu Arg Val Gly Pro Ala Asp Ala Ser Gly Arg Arg Thr Leu Thr Ala  
 E--> 3042 545 2550 2555 2560  
 3044 Arg Ser Arg Ala Glu Gly Asp Gly Asp Arg Pro Trp Val Gln His Ala  
 3045 2565 2570 2575  
 3047 Thr Gly Val Leu Ala Glu Gly Glu Ser Thr Pro Glu Pro Gly Tyr Asp  
 3048 2580 2585 2590  
 3050 Phe His Thr Glu Ser Trp Pro Pro Ala Asp Ala Ala Pro Val Glu Leu  
 3051 2595 2600 2605  
 3053 Ser Gly Leu Tyr Pro Asp Phe Ala Ala His Gly Phe Asp Tyr Gly Pro  
 3054 2610 2615 2620

*Dane*

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Input Set : N:\jumbos\huge\10018009.raw  
Output Set: N:\CRF3\05212002\J018009.raw

3056 His Phe Gln Gly Leu Arg Thr Ala Trp Arg Arg Gly Asp Glu Val Phe  
E--> 3057 625 2630 2635 2640  
3059 Ala Glu Val Ala Leu Pro Ala Glu Ala Glu Gly Glu Ala Ser Ala Tyr  
3060 2645 2650 2655  
3062 Gly Leu His Pro Ala Leu Leu Asp Ala Ala Leu His Val Val Ala Phe  
3063 2660 2665 2670  
3065 Asn Gly Val Asp Arg Gly Val Val Pro Phe Ser Trp Glu Ser Val Ala  
3066 2675 2680 2685  
3068 Leu His Ala Thr Gly Ala Ser Ala Val Arg Ile Arg Val Val Arg His  
3069 2690 2695 2700  
3071 Ser Gly Asp Thr Val Ser Val Asp Val Ala Asp Thr Thr Gly Glu Pro  
E--> 3072 705 2710 2715 2720  
3074 Val Ala Ser Ile Gly Thr Leu Val Leu Arg Ala Val Ser Ala Asp Gln  
3075 2725 2730 2735  
3077 Leu Ala Gly Gly Ala Asp Pro Ala Val Arg Asp Ala Leu Phe Arg Val  
3078 2740 2745 2750  
3080 Gln Trp Asn Pro Val Arg Leu Pro Pro Ala Gly Ala Ala Val Thr Val  
3081 2755 2760 2765  
3083 Ala Thr Leu Gly Ser Leu Ala Gly Ala Pro Phe Asp Gly Tyr Pro Asp  
3084 2770 2775 2780  
3086 Leu Ala Ser Leu Ala Arg Ser Gly Arg Val Ala Gly Ala Val Leu Val  
E--> 3087 785 2790 2795 2800  
3089 Pro Val Glu Ala Gly Ala Gly Glu Val Val Ala Asp Asp Val Val Gly  
3090 2805 2810 2815  
3092 Ala Thr His Ala Thr Ala Ala Arg Ala Leu Asp Leu Ala Arg Ser Trp  
3093 2820 2825 2830  
3095 Leu Ala Asp Asp Arg Phe Ala Ala Ser Arg Leu Val Phe Val Thr Arg  
3096 2835 2840 2845  
3098 Gly Ala Val Ser Gly Ala Asp Leu Ala Gly Ala Ala Val Trp Gly Leu  
3099 2850 2855 2860  
3101 Val Arg Ser Ala Leu Ser Glu His Pro Gly Arg Phe Gly Leu Val Asp  
E--> 3102 865 2870 2875 2880  
3104 Leu Asp Asp Asp Ala Glu Leu Ala Leu Val Pro Arg Val Leu Ala Ser  
3105 2885 2890 2895  
3107 Asp Glu Pro Gln Leu Leu Val Arg Gly Gly Glu Val Leu Ala Ala Arg  
3108 2900 2905 2910  
3110 Leu Ala Arg Ala Gln Ser Ser His Ala Val Thr Trp Asp Pro Ser Gly  
3111 2915 2920 2925  
3113 Thr Val Leu Val Thr Gly Gly Thr Gly Gly Leu Gly Arg Val Met Ala  
3114 2930 2935 2940  
3116 Arg His Leu Val Val Glu His Gly Val Arg Asn Leu Leu Leu Val Ser  
E--> 3117 945 2950 2955 2960  
3119 Arg Arg Gly Pro Ala Ala Glu Gly Ala Glu Glu Leu Val Thr Glu Leu  
3120 2965 2970 2975  
3122 Arg His Ser Gly Ala Glu Val Ala Val Glu Ala Cys Asp Val Thr Asp  
3123 2980 2985 2990  
3125 Ala Ala Ala Val Ala Asp Leu Val Ala Arg His Arg Ile Ser Ala Val  
3126 2995 3000 3005  
3128 Val His Thr Ala Gly Val Leu Asp Asp Gly Val Val Glu Ser Leu Thr

*Same*

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Input Set : N:\jumbos\huge\10018009.raw  
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3129	3010	3015	3020
3131 Pro	Glu Arg Leu Ser Ala Val Leu Arg Pro Lys Val Asp Ala Ala Trp		
E--> 3132 025	3030	3035	3040
3134 Asn Leu His Glu Ala Thr Arg Asp Leu Asp Leu Asp Ala Phe Val Val			
3135	3045	3050	3055
3137 Phe Ser Ser Val Ala Gly Thr Ile Gly Ser Pro Gly Gln Ala Asn Tyr			
3138	3060	3065	3070
3140 Ala Ala Gly Asn Ala Phe Leu Asp Ala Leu Ala His His Arg Arg Ala			
3141	3075	3080	3085
3143 Ala Gly Leu Pro Ala Ala Ser Leu Ala Trp Gly Pro Trp Ser Arg Asp			
3144	3090	3095	3100
E--> 3146 Gly Gly Met Thr Gly Thr Leu Thr Asp Val Asp Ser Ser Ala Ser Pro			
E--> 3147 105	3110	3115	3120
3149 Gly Arg His Ala Arg Thr His Pro Arg Thr Gly Arg Gly Leu Phe Asp			
3150	3125	3130	3135
3152 Ala Ala Leu Ala Ala Gly Asp Ala His Leu Leu Pro Val Arg Phe Asp			
3153	3140	3145	3150
3155 Trp Ala Ser Leu Arg Ala Gln Gly Glu Val Pro Pro Leu Leu Arg Gly			
3156	3155	3160	3165
3158 Leu Ile Arg Thr Arg Ala Arg Arg Ser Ala Val Gly Gly Ser Ala Ala			
3159	3170	3175	3180
E--> 3161 Ala Ala Gly Leu Val Gly Arg Leu Ser Gly Arg Gly Thr Val Glu Arg			
E--> 3162 185	3190	3195	3200
3164 Arg Glu Val Leu Leu Asp Leu Val Arg Ala Gln Ile Ala Val Val Leu			
3165	3205	3210	3215
3167 Gly His Ala Asn Pro Glu Thr Ile Glu Ser Thr Arg Val Phe Gln Asp			
3168	3220	3225	3230
3170 Leu Gly Phe Asp Ser Leu Thr Ala Val Glu Leu Arg Asn Arg Leu Asn			
3171	3235	3240	3245
3173 Asn Ala Thr Gly Leu Arg Leu Ser Ala Thr Ala Val Phe Asp Tyr Pro			
3174	3250	3255	3260
E--> 3176 Thr Ala Asp Ala Leu Val Asp Phe Leu Leu Asp Glu Leu Phe Gly Ala			
E--> 3177 265	3270	3275	3280
3179 Gln Glu Ala Glu Leu Pro Ala Pro Val Pro Ser Pro Ala Gly Ala			
3180	3285	3290	3295
3182 Ala Asp Asp Pro Val Val Ile Val Gly Met Ser Cys Arg Tyr Pro Gly			
3183	3300	3305	3310
3185 Gly Val Gly Ser Pro Glu Asp Leu Trp Arg Leu Val Ser Glu Gly Val			
3186	3315	3320	3325
3188 Asp Ala Val Ser Asp Phe Pro Thr Asp Arg Gly Trp Asp Val Glu Ser			
3189	3330	3335	3340
E--> 3191 Leu Tyr Ser Pro Asp Pro Glu Ala Leu Gly Thr Ser Tyr Thr Arg Ser			
E--> 3192 345	3350	3355	3360
3194 Gly Gly Phe Leu His Glu Ala Ala Glu Phe Asp Pro Asp Phe Phe Gly			
3195	3365	3370	3375
3197 Met Ser Pro Arg Glu Ala Leu Ala Thr Asp Ala Gln Gln Arg Leu Leu			
3198	3380	3385	3390
3200 Leu Glu Thr Thr Trp Glu Ala Ile Glu Arg Thr Gly Ile Asp Pro Ala			
3201	3395	3400	3405

*Same*

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Input Set : N:\jumbos\huge\10018009.raw  
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3203 Ser Leu Arg Gly Ser Arg Thr Gly Val Phe Ala Gly Val Met Tyr Thr  
 3204 3410 3415 3420  
 3206 Asp Tyr Gly Asp Leu Leu Val Gly Asp Gln Phe Glu Gly Tyr Arg Ser  
 E--> 3207 425 3430 3435 3440  
 3209 Asn Gly Ser Ala Ala Ser Ile Ala Ser Gly Arg Val Ser Tyr Thr Phe  
 3210 3445 3450 3455  
 3212 Gly Phe Glu Gly Pro Ala Val Thr Val Asp Thr Ala Cys Ser Ser Ser  
 3213 3460 3465 3470  
 3215 Leu Val Ala Leu His Trp Ala Ala Gln Ser Leu Arg Ser Gly Glu Cys  
 3216 3475 3480 3485  
 3218 Ser Leu Ala Val Ala Gly Gly Val Thr Val Met Ser Thr Pro Thr Thr  
 3219 3490 3495 3500  
 3221 Phe Val Glu Phe Ser Arg Gln Arg Gly Leu Ser Ala Asp Gly Arg Cys  
 E--> 3222 505 3510 3515 3520  
 3224 Lys Ala Phe Ala Asp Ala Ala Asp Gly Val Gly Trp Gly Glu Gly Val  
 3225 3525 3530 3535  
*Mane*  
 3227 Gly Met Leu Val Leu Glu Arg Leu Ser Asp Ala Arg Arg Asn Gly His  
 3228 3540 3545 3550  
 3230 Arg Val Leu Ala Val Val Arg Gly Ser Ala Val Asn Gln Asp Gly Ala  
 3231 3555 3560 3565  
 3233 Ser Asn Gly Leu Thr Ala Pro Asn Gly Pro Ala Gln Gln Arg Val Ile  
 3234 3570 3575 3580  
 3236 Arg Gln Ala Leu Ala Ser Ala Gly Leu Ser Ala Ala Asp Val Asp Ala  
 E--> 3237 585 3590 3595 3600  
 3239 Val Glu Ala His Gly Thr Gly Thr Thr Leu Gly Asp Pro Ile Glu Ala  
 3240 3605 3610 3615  
 3242 Gln Ala Leu Leu Ala Thr Tyr Gly Gln Glu Arg Pro Glu Asp Arg Pro  
 3243 3620 3625 3630  
 3245 Leu Leu Leu Gly Ser Val Lys Ser Asn Ile Gly His Ala Gln Ala Ala  
 3246 3635 3640 3645  
 3248 Ser Gly Val Ala Gly Val Ile Lys Met Val Leu Ala Met Arg His Gly  
 3249 3650 3655 3660  
 3251 Val Leu Pro Arg Thr Leu His Val Asp Glu Pro Ser Ser His Val Asp  
 E--> 3252 665 3670 3675 3680  
 3254 Trp Ser Ala Gly Ala Val Glu Leu Leu Thr Ser Glu Ala Glu Trp Pro  
 3255 3685 3690 3695  
 3257 Gln Gly Glu Gly Pro Arg Arg Ala Gly Val Ser Ser Phe Gly Val Ser  
 3258 3700 3705 3710  
 3260 Gly Thr Asn Ala His Val Ile Leu Glu Gln Pro Gly Pro Asp Ala Ala  
 3261 3715 3720 3725  
 3263 Asp Ala Ala Pro Asp Ala Thr Val Thr Asp Pro Gly Ala Leu Ala Trp  
 3264 3730 3735 3740  
 3266 Val Leu Ser Ala Arg Asn Glu Ala Ala Leu Arg Cys Gln Ala Ala Arg  
 E--> 3267 745 3750 3755 3760  
 3269 Leu Leu Ser Leu Val Ala Gly Ser Asp Ala Leu Cys Ala Arg Asp Ile  
 3270 3765 3770 3775  
 3272 Gly His Ser Leu Val Thr Gly Arg Ser Ser Phe Ala His Arg Ala Val  
 3273 3780 3785 3790  
 3275 Val Trp Gly Gln Asp Arg Asp Ala Leu Val Arg Ala Leu Ser Ala Leu

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Input Set : N:\jumbos\huge\10018009.raw  
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3276	3795	3800	3805
3278 Ala	Val Gly Glu Ala Asp Ala Gly Leu Ala Glu Gly Ala Ser Gly Ala		
3279	3810	3815	3820
3281 Gly Arg Thr Ala Phe Leu Phe Ser Gly Gln Gly Ser Gln Arg Leu Gly			
E--> 3282 825	3830	3835	3840
3284 Met Gly Trp Glu Leu Tyr Ala Arg Tyr Pro Val Phe Ala Asp Ala Phe			
3285	3845	3850	3855
3287 Asp Ala Val Cys Ala Ala Leu Asp Glu His Leu Glu Arg Pro Leu Arg			
3288	3860	3865	3870
3290 Asp Val Val Trp Gly Glu Asp Ala Glu Leu Leu Asn Gln Thr Ala Tyr			
3291	3875	3880	3885
3293 Ala Gln Ala Gly Leu Phe Ala Ile Glu Val Ala Leu Tyr Arg Leu Ala			
3294	3890	3895	3900
3296 Glu Ser Trp Gly Met Arg Pro Asp Phe Val Ala Gly His Ser Ile Gly			
E--> 3297 905	3910	3915	3920
3299 Glu Val Ala Ala His Val Ser Gly Val Phe Ser Leu Pro Asp Ala			
3300	3925	3930	3935
3302 Cys Ala Leu Val Ala Ala Arg Gly Arg Leu Met Gln Gln Leu Pro Ser			
3303	3940	3945	3950
3305 Gly Gly Ala Met Met Ala Ile Arg Ala Thr Glu Asp Glu Val Leu Pro			
3306	3955	3960	3965
3308 His Leu Ala Glu Gly Val Ser Leu Ala Ala Val Asn Gly Pro Ser Ser			
3309	3970	3975	3980
3311 Val Val Ile Ser Gly Ala Glu Asp Ala Val Leu Ala Ile Ala Ala His			
E--> 3312 985	3990	3995	4000
3314 Phe Ala Gly Glu Gly Arg Lys Thr Thr Arg Leu Arg Val Ser His Ala			
3315	4005	4010	4015
3317 Phe His Ser Pro Leu Met Glu Pro Met Leu Glu Glu Phe Arg Ala Val			
3318	4020	4025	4030
3320 Val Thr Arg Leu Ser Phe Gly Thr Pro Thr Ile Pro Val Val Ser Asn			
3321	4035	4040	4045
3323 Leu Thr Gly Arg Leu Ala Glu Pro Glu Gln Leu Ala His Ala Asp Tyr			
3324	4050	4055	4060
3326 Trp Val Arg His Val Arg Glu Ala Val Arg Phe Ala Asp Gly Ile Gln			
E--> 3327 065	4070	4075	4080
3329 Ala Leu Arg Ala Glu Gly Val Thr Arg Phe Leu Glu Leu Gly Pro Asp			
3330	4085	4090	4095
3332 Gly Val Leu Ser Ala Met Ala Arg Glu Ser Ala Ser Asp Asp Ala Val			
3333	4100	4105	4110
3335 Leu Ala Pro Val Leu Arg Arg Asp Arg Pro Glu Glu Thr Ala Leu Leu			
3336	4115	4120	4125
3338 Gly Ala Leu Ala Gln Leu Tyr Val Arg Gly Ala His Val Asp Trp Thr			
3339	4130	4135	4140
3341 Val Pro Phe Ala Gly Ser Gly Ala Arg Trp Ala Asp Leu Pro Thr Tyr			
E--> 3342 145	4150	4155	4160
3344 Ala Phe Gln His Glu Arg Phe Trp Pro Ser Gly Gly Val Ala Arg Pro			
3345	4165	4170	4175
3347 Gly Asp Val Arg Ser Ala Gly Leu Gly Ser Ala Gly His Pro Leu Leu			
3348	4180	4185	4190

*Same*

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Input Set : N:\jumbos\huge\10018009.raw  
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3350 Gly Ala Ala Val Glu Leu Ala Gly Ser Gly Gly Leu Leu Phe Thr Gly  
 3351 4195 4200 4205  
 3353 Arg Leu Ser Val Ser Ser His Pro Trp Leu Ala Asp His Val Val Leu  
 3354 4210 4215 4220  
 3356 Gly Ser Val Leu Val Pro Gly Thr Ala Leu Val Glu Leu Val Leu Arg  
 E--> 3357 225 4230 4235 4240  
 3359 Ala Ala Asp Glu Ala Gly Cys Asp Leu Leu Glu Glu Leu Thr Leu Ala  
 3360 4245 4250 4255  
 3362 Ala Pro Leu Val Leu Pro Ala Ser Gly Ala Ala Val Gln Val Gln Val  
 3363 4260 4265 4270  
 3365 Ala Val Gly Glu Pro Asp Glu Ala Gly Arg Arg Pro Val Ser Val His  
 3366 4275 4280 4285  
 3368 Ala Arg Glu Gly Glu Gly Pro Trp Thr Leu His Ala Ser Gly Ala Val  
 3369 4290 4295 4300  
 3371 Thr Ser Gly Ala Glu Val Pro Pro Phe Asp Ala Thr Val Trp Pro Pro  
 E--> 3372 305 4310 4315 4320  
 3374 Lys Gly Ala Glu Pro Val Asp Val Ala Asp Cys Tyr Asp Val Leu Ala  
 3375 4325 4330 4335  
 3377 Asp Ala Gly Leu Thr Tyr Gly Pro Ala Phe His Gly Leu Gln Ala Ala  
 3378 4340 4345 4350  
 3380 Trp Lys Leu Gly Gly Asp Val Tyr Ala Glu Ala Lys Leu Pro Glu Ser  
 3381 4355 4360 4365  
 3383 Thr Asp Gly Asp Ala Tyr Gly Leu His Pro Ala Leu Phe Asp Ala Ala  
 3384 4370 4375 4380  
 3386 Leu His Ala Ser Ala Leu Gly Gly Ala Glu Ala Gly Gly Val Pro Phe  
 E--> 3387 385 4390 4395 4400  
 3389 Ser Trp Ala Gly Val Ser Leu His Ala Thr Gly Ala Ser His Leu Arg  
 3390 4405 4410 4415  
 3392 Val Arg Ile Arg Glu Ala Gly Gly Ala Leu Ser Val Ala Ile Ala Asp  
 3393 4420 4425 4430  
 3395 Thr Ser Gly Ala Pro Val Ala Ser Val Glu Ser Leu Val Ile Arg Pro  
 3396 4435 4440 4445  
 3398 Leu Ser Ala Gly Gln Val Gln Ala Ala Asp Arg Asp Ala Leu Phe-Lys  
 3399 4450 4455 4460  
 3401 Ala Asp Trp Val Pro Val Pro Leu Thr Asp Glu Arg Val Glu Pro Gly  
 E--> 3402 465 4470 4475 4480  
 3404 Thr Gly Pro Glu Gly Glu Pro Leu Arg Thr Tyr Ala Asp Leu Asp Ser  
 3405 4485 4490 4495  
 3407 Leu Glu Gly Ala Ala Val Pro Gly Thr Val Leu Val Ala Pro Pro Ser  
 3408 4500 4505 4510  
 3410 Gly Ala Ala Gly Thr Val Glu Ser Val His Ala Ala Thr Val Trp Ala  
 3411 4515 4520 4525  
 3413 Leu Glu Met Val Gln Ala Trp Leu Ala Asp Asp Arg Phe Ala Thr Ser  
 3414 4530 4535 4540  
 3416 Arg Leu Val Phe Val Thr Arg Gly Ala Ala Phe Gly Ala Asp Leu Ala  
 E--> 3417 545 4550 4555 4560  
 3419 Ala Ala Ala Val Arg Gly Leu Val Arg Ser Ala Gln Ser Glu Asn Pro  
 3420 4565 4570 4575  
 3422 Gly Arg Phe Gly Leu Val Asp Met Asp Gly Asp Ala Asp Thr Thr Val

*Same*

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Input Set : N:\jumbos\huge\10018009.raw  
Output Set: N:\CRF3\05212002\J018009.raw

3423	4580	4585	4590
3425	Pro Ala Gln Ala Leu Ala Thr Asp Glu Pro Glu Leu Leu Val Arg Gly		
3426	4595	4600	4605
3428	Gly Glu Val Leu Ala Ala Arg Leu Val Arg Ala Gln Ser Ser His Thr		
3429	4610	4615	4620
3431	Val Thr Trp Asp Pro Ser Gly Thr Val Leu Ile Thr Gly Gly Thr Gly		
E--> 3432	625	4630	4635
			4640
3434	Gly Leu Gly Arg Ser Val Ala Arg His Leu Val Ser Glu His Gly Val		
3435	4645	4650	4655
3437	Arg Ser Leu Leu Leu Val Ser Arg Arg Gly Pro Ala Ala Glu Gly Ala		
3438	4660	4665	4670
3440	Gly Glu Leu Val Ala Glu Leu Arg Gly Ser Gly Ala Glu Val Val Ile		
3441	4675	4680	4685
3443	Glu Ala Cys Asp Val Thr Asp Ala Val Ala Val Ala Asp Leu Val Ala		
3444	4690	4695	4700
3446	Arg His Arg Ile Ser Ala Val Val His Thr Ala Gly Val Leu Asp Asp		
E--> 3447	705	4710	4715
			4720
3449	Gly Val Val Glu Ser Leu Thr Pro Glu Arg Leu Ala Val Val Leu Arg		
3450	4725	4730	4735
3452	Pro Lys Val Asp Ala Ala Trp Asn Leu His Glu Ala Thr Arg Gly Leu		
3453	4740	4745	4750
3455	Asp Leu Asp Ala Phe Val Val Phe Ser Ser Val Ala Gly Thr Phe Gly		
3456	4755	4760	4765
3458	Ser Ala Gly Gln Ala Asn Tyr Ala Ala Gly Asn Ala Phe Leu Asp Ala		
3459	4770	4775	4780
3461	Ileu Ala Tyr His Arg Arg Ala Val Gly Leu Pro Ala Val Ser Leu Ala		
E--> 3462	785	4790	4795
			4800
3464	Trp Gly Pro Trp Ser Gln Asp Gly Gly Met Thr Gly Thr Leu Ser Asp		
3465	4805	4810	4815
3467	Ala Asp Val Gln Arg Ile Ala Arg Gln Gly Met Pro Pro Leu Thr Val		
3468	4820	4825	4830
3470	Glu Glu Gly Leu Ala Leu Phe Asp Ala Ala Leu Gly Ser Ala Glu Pro		
3471	4835	4840	4845
3473	Met Ala Leu Pro Val Arg Leu Asp Leu Ala Ala Leu Arg Ala Gln Gly		
3474	4850	4855	4860
3476	Glu Pro Gln Pro Leu Leu Arg Gly Leu Ile Arg Thr Arg Thr Arg Arg		
E--> 3477	865	4870	4875
			4880
3479	Ser Gly Ala Ala Ala Ala Ser Gly Ile Ala Gln Arg Leu Ala Gly Leu		
3480	4885	4890	4895
3482	Ser Thr Ala Glu Arg Arg Glu Ala Leu Leu Asp Val Val Arg Ala Gln		
3483	4900	4905	4910
3485	Ile Ala Thr Val Leu Gly His Ala Gly Pro Glu Thr Ile Ala Pro Asp		
3486	4915	4920	4925
3488	Arg Ala Phe Gln Asp Leu Gly Leu Asp Ser Leu Thr Ala Ile Glu Leu		
3489	4930	4935	4940
3491	Arg Asn Leu Leu Gly Lys Ala Thr Gly Leu Arg Leu Pro Ala Thr Thr		
E--> 3492	945	4950	4955
			4960
3494	Val Phe Asp Tyr Pro Thr Val Asp Ala Leu Ala Ala His Leu Leu Asp		
3495	4965	4970	4975

*Same*

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002  
TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw  
Output Set: N:\CRF3\05212002\J018009.raw

3497 Glu Leu Phe Gly Ala Glu Thr Gly Thr Ala Thr Glu Thr Pro Leu Pro  
3498 4980 4985 4990  
3500 Val Pro Gly Leu Pro Ser Leu Ala Asp Asp Pro Val Val Ile Val Gly  
3501 4995 5000 5005  
3503 Met Ser Cys Arg Phe Pro Gly Gly Val Ala Ser Pro Glu Asp Leu Trp  
3504 5010 5015 5020  
3506 Arg Leu Val Ala Asp Gly Val Asp Ala Val Ser Ala Phe Pro Thr Asp  
E--> 3507 025 5030 5035 5040  
3509 Arg Gly Trp Glu Ile Asp Asp Thr Tyr Asp Pro Glu Arg Glu Gly Ala  
3510 5045 5050 5055  
3512 Ile Ala Thr Arg Ser Gly Gly Phe Leu His Asp Ala Ala Glu Phe Asp  
3513 5060 5065 5070  
3515 Pro Glu Phe Phe Gly Met Ser Pro Arg Glu Ala Leu Thr Thr Asp Ala  
3516 5075 5080 5085  
3518 Gln Gln Arg Leu Leu Leu Glu Thr Thr Trp Glu Ala Leu Glu Arg Ala  
3519 5090 5095 5100  
3521 Gly Met Asp Pro Ala Thr Leu Arg Gly Ser Arg Thr Gly Val Phe Ala  
E--> 3522 105 5110 5115 5120  
3524 Gly Val Met Tyr His Asp Tyr Ser Thr Leu Leu Ser Gly Arg Glu Phe  
3525 5125 5130 5135  
3527 Glu Gly Tyr Gln Gly Ser Gly Ser Ala Gly Ser Val Ala Ser Gly Arg  
3528 5140 5145 5150  
3530 Val Ser Tyr Thr Phe Gly Phe Glu Gly Pro Ala Val Thr Val Asp Thr  
3531 5155 5160 5165  
3533 Ala Cys Ser Ser Ser Leu Val Ala Leu His Leu Ala Ala Gln Ser Leu  
3534 5170 5175 5180  
3536 Arg Ser Gly Glu Cys Ser Leu Ala Leu Ala Gly Gly Val Thr Val Met  
E--> 3537 185 5190 5195 5200  
3539 Ser Thr Pro Leu Thr Phe Val Glu Phe Ser Arg Gln Gly Gly Leu Ser  
3540 5205 5210 5215  
3542 Ala Asp Gly Arg Cys Lys Ala Phe Ala Asp Ala Ala Asp Gly Val Gly  
3543 5220 5225 5230  
3545 Trp Ala Glu Gly Ala Gly Ile Leu Val Leu Glu Arg Leu Ser Asp Ala  
3546 5235 5240 5245  
3548 Arg Arg Asn Gly His Arg Ile Leu Ala Thr Val Arg Gly Ser Ala Val  
3549 5250 5255 5260  
3551 Asn Gln Asp Gly Ala Ser Asn Gly Leu Thr Ala Pro Asn Gly Pro Ala  
E--> 3552 265 5270 5275 5280  
3554 Gln Gln Arg Val Ile Arg Gln Ala Leu Ala Ser Ala Gly Leu Ser Ala  
3555 5285 5290 5295  
3557 Ala Asp Val Asp Ala Val Glu Ala His Gly Thr Gly Thr Thr Leu Gly  
3558 5300 5305 5310  
3560 Asp Pro Ile Glu Ala Gln Ala Leu Leu Ala Thr Tyr Gly Gln Glu Arg  
3561 5315 5320 5325  
3563 Pro Glu Asp Arg Pro Leu Leu Leu Gly Ser Val Lys Ser Asn Ile Gly  
3564 5330 5335 5340  
3566 His Ala Gln Ala Ala Ser Gly Val Ala Gly Val Ile Lys Met Val Leu  
E--> 3567 345 5350 5355 5360  
3569 Ala Met Arg His Gly Val Leu Pro Arg Thr Leu His Val Asp Glu Pro

*Jane*

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002  
TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw  
Output Set: N:\CRF3\05212002\J018009.raw

3570	5365	5370	5375
3572 Ser Ser His Val Asp Trp Ser Ala Gly Ala Val Glu Leu Leu Thr Ser			
3573	5380	5385	5390
3575 Glu Ala Glu Trp Pro Gln Gly Glu Gly Pro Arg Arg Ala Gly Val Ser			
3576	5395	5400	5405
3578 Ser Phe Gly Ile Ser Gly Thr Asn Ala His Val Ile Leu Glu Gln Pro			
3579	5410	5415	5420
3581 Glu Pro Val Ala Ala Glu Thr Glu Ser Ile Thr Pro Asp Thr Ala Pro			
E--> 3582 425	5430	5435	5440
3584 Asp Ala Ala Glu Asp Glu Ala Ala Asp Ser Gly Thr Pro Val Pro Ala			
3585	5445	5450	5455
3587 Leu Leu Ser Gly Arg Ser Ala Ser Ala Leu Arg Ala Gln Ala Ala Arg			
3588	5460	5465	5470
3590 Leu Leu Ser Arg Leu Asp Gly Asp Pro Gly Pro Arg Ile Thr Asp Val			
3591	5475	5480	5485
3593 Ala Tyr Ser Leu Ala Thr Gly Arg Ser Ala Phe Pro His Arg Ala Val			
3594	5490	5495	5500
3596 Leu Leu Ala Ala Asn Arg Ala Asp Leu Leu His Ser Leu Ser Ala Leu			
E--> 3597 505	5510	5515	5520
3599 Ala Glu Gly His Thr Glu Ala Pro Ala Val Val Ala Gln Asp Arg Ala			
3600	5525	5530	5535
3602 Arg Ser Gly Lys Leu Ala Phe Leu Phe Ser Gly Gln Gly Ser Gln Arg			
3603	5540	5545	5550
3605 Leu Gly Met Gly Arg Glu Leu Tyr Gly Arg Tyr Pro Ala Phe Ala Glu			
3606	5555	5560	5565
3608 Ala Leu Asp Ala Val Cys Ala Ala Leu Asp Ala His Leu Asp Arg Pro			
3609	5570	5575	5580
3611 Leu Arg Asp Val Ile Trp Gly Glu Asp Ala Glu Leu Leu Asn Arg Thr			
E--> 3612 585	5590	5595	5600
3614 Gly Tyr Ala Gln Thr Gly Leu Phe Ala Ile Glu Val Ala Leu Phe Arg			
3615	5605	5610	5615
3617 Leu Leu Glu Ser Trp Gly Val Arg Pro Asp His Leu Leu Gly His Ser			
3618	5620	5625	5630
3620 Ile Gly Glu Ile Ala Ala His Val Ala Gly Val Leu Ser Leu Pro			
3621	5635	5640	5645
3623 Asp Ala Cys Ala Leu Val Ala Ala Arg Gly Arg Leu Met Gln Gln Leu			
3624	5650	5655	5660
3626 Pro Ser Gly Gly Ala Met Met Ala Ile Arg Ala Thr Glu Asp Glu Val			
E--> 3627 665	5670	5675	5680
3629 Leu Pro His Leu Ala Glu Gly Val Ser Leu Ala Ala Val Asn Gly Pro			
3630	5685	5690	5695
3632 Ser Ser Val Val Val Ser Gly Ala Glu Asp Glu Val Leu Ala Leu Ala			
3633	5700	5705	5710
3635 Ala His Phe Glu Glu Gly Arg Lys Thr Thr Arg Leu Arg Val Ser			
3636	5715	5720	5725
3638 His Ala Phe His Ser Pro Leu Met Glu Pro Met Leu Ala Asp Phe Arg			
3639	5730	5735	5740
3641 Ala Val Ala Asp Gly Met Thr Tyr Ala Ala Pro Arg Ile Pro Val Val			
E--> 3642 745	5750	5755	5760

*Name*

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002  
TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw  
Output Set: N:\CRF3\05212002\J018009.raw

3644 Ser Asn Val Thr Gly Arg Pro Ala Thr Ala Glu Glu Leu Cys Cys Ala  
3645 5765 5770 5775  
3647 Glu Tyr Trp Val Gly His Val Arg Glu Ala Val Arg Phe Ala Asp Gly  
3648 5780 5785 5790  
3650 Val Gly Ala Leu Arg Glu Gln Gly Val Thr Thr Phe Leu Glu Leu Gly  
3651 5795 5800 5805  
3653 Pro Asp Gly Ser Leu Ser Ala Leu Ala Ala Glu Ser Ala Ala Asp Asp  
3654 5810 5815 5820  
3655 Ser Val Leu Ala Pro Val Leu Arg Lys Asn Arg Pro Glu Ala Pro Ala  
E--> 3651 825 5830 5835 5840  
3659 Leu Leu Thr Ala Leu Ala Arg Leu His Ala Gln Gly Thr Pro Val Asp  
3660 5845 5850 5855  
3662 Trp Ser Ala Ala Phe Ala Gly Thr Gly Ala Arg Trp Val Asp Leu Pro  
3663 5860 5865 5870  
3665 Thr Tyr Ala Phe Gln His Glu Arg Phe Trp Pro Ser Gly Gly Ala Ala  
3666 5875 5880 5885  
3668 Arg Ala Gly Asp Val Arg Ser Ala Gly Leu Gly Ser Ala Gly His Pro  
3669 5890 5895 5900  
3671 Leu Leu Gly Ala Ala Val Glu Leu Ala Gly Ser Gly Gly Arg Leu Leu  
E--> 3670 905 5910 5915 5920 *Same*  
3674 Thr Gly Arg Leu Ser Leu Ser Ser His Pro Trp Leu Ala Asp His Val  
3675 5925 5930 5935  
3677 Val Leu Gly Ser Val Leu Val Pro Gly Thr Ala Leu Met Glu Leu Val  
3678 5940 5945 5950  
3680 Leu Arg Ala Ala Asp Glu Val Asp Cys Ala Ala Val Asp Glu Leu Thr  
3681 5955 5960 5965  
3683 Leu Ala Ala Pro Leu Val Leu Pro Ala Ser Gly Ala Ala Ile Gln Val  
3684 5970 5975 5980  
3686 Gln Val Trp Val Gly Glu Pro Asp Glu Ala Gly Arg Arg Pro Val Ser  
E--> 3687 985 5990 5995 6000  
3689 Val His Ala Arg Glu Gly Glu Gly Pro Trp Thr Leu His Ala Asp Gly  
3690 6005 6010 6015  
3692 Ala Leu Ala Pro Ala Ala Glu Thr Val Pro Phe Asp Thr Ala Ile Trp  
3693 6020 6025 6030  
3695 Pro Pro Gln Gly Ala Glu His Leu Asp Ala Ala Gly Cys Tyr Glu Arg  
3696 6035 6040 6045  
3698 Phe Ala Asp Ala Gly Phe Ala Tyr Gly Pro Val Phe Gln Gly Leu Arg  
3699 6050 6055 6060  
3701 Ala Ala Trp Lys Leu Gly Glu Asp Ile Tyr Ala Glu Val Ala Leu Pro  
E--> 3702 065 6070 6075 6080  
3704 Glu Gly Thr Asp Gly Asn Ala Tyr Gly Leu His Pro Ala Leu Phe Asp  
3705 6085 6090 6095  
3707 Ala Ala Leu His Ala Ala Leu Leu Gly Gly Glu Gly Thr Asp Glu Ala  
3708 6100 6105 6110  
3710 Ala Val Pro Phe Ser Trp Asn Gly Val Thr Leu His Ala Thr Gly Ala  
3711 6115 6120 6125  
3713 Ser Arg Val Arg Val Arg Ile Arg Pro Thr Glu Gly Gly Thr Ser Ile  
3714 6130 6135 6140  
3716 Ala Leu Val Asp Thr Ala Gly Ala Pro Val Ala Ser Val Arg Ser Leu

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002  
TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw  
Output Set: N:\CRF3\05212002\J018009.raw

E--> 3717 145 6150 6155 6160  
 3719 Thr Ala Arg Pro Ile Thr Ala Gly Gln Leu Gln Thr Gly Asp Arg Asp  
 3720 6165 6170 6175  
 3722 Ser Leu Phe Gln Val Asp Trp Thr Thr Leu His Leu Thr Asp Glu Arg  
 3723 6180 6185 6190  
 3725 Ala Asn Ser Leu Ala Leu Leu Gly Lys Asp Thr Glu Gly Ile Leu Asp  
 3726 6195 6200 6205  
 3728 Thr Leu Ser Leu Gln Pro His Ala Asp Leu Asp Asp Leu Ala Ala Thr  
 3729 6210 6215 6220  
 3731 Gly Val His Asp Thr Val Leu Ala Pro Leu Pro Thr Arg Thr Ala Gly  
 E--> 3732 225 6230 6235 6240  
 3734 Thr Val Glu Ser Val His Ala Ala Thr Thr Gly Ala Leu Ala Leu Ile  
 3735 6245 6250 6255  
 3737 Arg Ser Trp Leu Ala Asp Asp Arg Phe Ala Ala Ser Arg Leu Val Phe  
 3738 6260 6265 6270  
 3740 Val Thr Arg Gly Ala Val Ser Gly Thr Asp Leu Ala Gly Ala Ser Val  
 3741 6275 6280 6285  
 3743 Trp Gly Leu Val Arg Ser Ala Leu Leu Glu His Pro Gly Arg Phe Gly  
 3744 6290 6295 6300  
 3746 Leu Val Asp Val Asp Val Asp Gln Asp Ala Glu Val Pro Leu Val Pro  
 E--> 3747 305 6310 6315 6320  
 3749 Arg Ala Leu Ala Ser Asp Glu Pro Gln Val Leu Val Arg Gly Gly Glu  
 3750 6325 6330 6335  
 3752 Val Leu Ala Ala Arg Leu Val Arg Ala Gln Ser Ser Asp Thr Val Thr  
 3753 6340 6345 6350  
 3755 Trp Asp Pro Ser Gly Thr Val Leu Ile Thr Gly Gly Thr Gly Gly Leu  
 3756 6355 6360 6365  
 3758 Gly Arg Ser Val Ala Arg His Leu Val Ser Glu His Gly Val Arg Ser  
 3759 6370 6375 6380  
 3761 Leu Leu Leu Val Ser Arg Arg Gly Pro Ala Ala Glu Gly Val Asp Ala  
 E--> 3762 385 6390 6395 6400  
 3764 Leu Val Ala Glu Leu Ala Glu Cys Gly Ala Gln Val Thr Val Glu Ala  
 3765 6405 6410 6415  
 3767 Cys Asp Val Thr Asp Ala Val Ala Val Ala Asp Leu Val Ala Arg His  
 3768 6420 6425 6430  
 3770 Arg Ile Ser Ala Val Val His Thr Ala Gly Val Leu Asp Asp Gly Val  
 3771 6435 6440 6445  
 3773 Val Glu Ser Leu Thr Pro Glu Arg Leu Ser Ala Val Leu Arg Pro Lys  
 3774 6450 6455 6460  
 3776 Val Asp Ala Ala Trp Asn Leu His Glu Ala Thr Arg Gly Leu Asp. Leu  
 E--> 3777 465 6470 6475 6480  
 3779 Asp Ala Phe Val Val Phe Ser Ser Val Ala Gly Thr Phe Gly Ser Ala  
 3780 6485 6490 6495  
 3782 Gly Gln Ala Asn Tyr Ala Ala Gly Asn Ala Phe Leu Asp Ala Leu Ala  
 3783 6500 6505 6510  
 3785 Tyr His Arg Arg Ala Val Gly Leu Pro Ala Val Ser Leu Ala Trp Gly  
 3786 6515 6520 6525  
 3788 Pro Trp Ser Gln Asp Gly Gly Met Thr Gly Thr Leu Ser Asp Ala Asp  
 3789 6530 6535 6540

*Same*

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002  
TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw  
Output Set: N:\CRF3\05212002\J018009.raw

3791 Val Gln Arg Ile Ala Arg Gln Gly Met Pro Pro Leu Thr Val Glu Glu  
E--> 3792 545 6550 6555 6560  
3794 Gly Leu Ala Leu Phe Asp Ala Ala Leu Gly Ser Ala Glu Pro Met Ala  
3795 6565 6570 6575  
3797 Leu Pro Val Arg Leu Asp Leu Ala Ala Leu Arg Ala Gln Gly Glu Pro  
3798 6580 6585 6590  
3800 Gln Pro Leu Leu Arg Gly Leu Ile Arg Thr Pro Gly Arg Arg Thr Ala  
3801 6595 6600 6605  
3803 Ala Ala Ala Thr Glu Gly Asp Thr Ala Ala Ala Phe Ala Gly Arg Leu  
3804 6610 6615 6620  
3806 Thr Gly Leu Ser Ala Ala Glu Gly Arg Glu Val Val Leu Gly Ala Val  
E--> 3807 625 6630 6635 6640  
3809 Arg Ser Gln Ile Ala Gly Val Leu Gly His Ala Glu Ala Thr Glu Ile  
3810 6645 6650 6655  
3812 Asp Gln Asp Arg Ala Phe Leu Asp Leu Gly Phe Asp Ser Leu Thr Ala  
3813 6660 6665 6670  
3815 Val Glu Leu Arg Asn Arg Leu Gly Ala Val Thr Gly Ile Arg Leu Pro  
3816 6675 6680 6685  
3818 Ala Thr Leu Leu Phe Asp Tyr Pro Thr Pro Ala Glu Leu Val Ala His  
3819 6690 6695 6700  
3821 Leu His Ala Arg Ile Ala Pro Glu Pro Thr Val Gly Pro Glu Ala Leu  
E--> 3822 705 6710 6715 6720  
3824 Leu Gly Glu Leu Glu Arg Met Glu Lys Ser Phe Gly Gly Leu Asp Leu  
3825 6725 6730 6735  
3827 Thr Glu Glu Met His Glu Gln Ile Ala Gly Arg Leu Glu Val Leu Arg  
3828 6740 6745 6750  
3830 Ala Lys Trp Asp Ala Leu Arg Asp Thr Ala Ala Ala Gly His Asp  
3831 6755 6760 6765  
3833 Gly Ser Pro Ser Asp Glu Asp Phe Asp Phe Glu Ser Ala Ser Asp Asp  
3834 6770 6775 6780  
3836 Glu Val Phe Asp Leu Leu Asp Asn Glu Leu Gly Leu Ser  
E--> 3837 785 6790 6795 *last amino acid*  
3992 <210> SEQ ID NO: 6  
3993 <211> LENGTH: 550 549 (p.25)  
3994 <212> TYPE: PRT  
3995 <213> ORGANISM: Streptomyces natalensis  
3997 <400> SEQUENCE: 6  
3998 Met Phe Glu Asn Gln His Leu Ser Arg Arg Arg Leu Leu Gly Leu Ala  
3999 1 5 10 15  
4001 Ala Leu Gly Gly Ala Ala Ala Ala Gly Met Thr Thr Ile Thr Ser Ala  
4002 20 25 30  
4004 Pro His Ala Ala Ala Ala Asp Arg Arg Ser Pro Gln Ala Arg Ser Gly  
4005 35 40 45  
4007 Ser Phe Val Pro Ala Val Val Ile Gly Thr Gly Tyr Gly Ala Ala Val  
4008 50 55 60  
4010 Ser Ala Leu Arg Leu Gly Glu Ala Gly Ile Pro Thr Leu Met Leu Glu  
4011 65 70 75 80  
4013 Met Gly Gln Leu Trp Asn Lys Pro Ala Asp Asp Gly Asn Val Phe Cys  
4014 85 90 95

*Same*

RAW SEQUENCE LISTING  
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DATE: 05/21/2002  
TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw  
Output Set: N:\CRF3\05212002\J018009.raw

4016 Gly Met Leu Ser Pro Asp Arg Arg Ser Ser Trp Phe Lys Ser Arg Thr  
 4017 100 105 110  
 4019 Glu Ala Pro Leu Gly Ser Phe Leu Trp Leu Asp Val Ile Asn Arg Asp  
 4020 115 120 125  
 4022 Ile Asp Pro Tyr Ala Gly Val Leu Asp Lys Val His Phe Asp Gln Met  
 4023 130 135 140  
 4025 Ser Val Tyr Val Gly Arg Gly Val Gly Gly Ser Leu Val Asn Gly  
 4026 145 150 155 160  
 4028 Gly Met Ala Val Val Pro Lys Arg Ser Tyr Phe Glu Glu Val Leu Pro  
 4029 165 170 175  
 4031 Arg Val Asp Ala Ala Glu Met Tyr Asp Arg Tyr Phe Pro Arg Ala Asn  
 4032 180 185 190  
 4034 Ser Met Leu Lys Val Asn His Ile Asp Lys Gly Trp Phe Glu Glu Thr  
 4035 195 200 205  
 4037 Glu Trp Tyr Lys Phe Ala Arg Val Ser Arg Glu Gln Ala Gly Lys Ala  
 4038 210 215 220  
 4040 Gly Leu Gly Thr Thr Phe Val Pro Asn Val Tyr Asp Phe Asp Tyr Met  
 4041 225 230 235 240  
 4043 Arg Arg Glu Ala Asn Gly Glu Ser Pro Lys Ser Ala Leu Ala Thr Glu  
 4044 245 250 255  
 4046 Val Ile Tyr Gly Asn Asn His Gly Lys Gln Ser Leu Asp Lys Thr Tyr  
 4047 260 265 270  
 4049 Leu Ala Ala Ala Leu Gly Thr Gly Lys Val Thr Ile Glu Thr Leu His  
 4050 275 280 285  
 4052 Gln Val Arg Ala Ile His Gln Gln Pro Asp Gly Ser Tyr Val Leu Ser  
 4053 290 295 300  
 4055 Val Asp Gln Ile Asp Thr Ala Gly Gln Thr Val Ala His Lys Glu Ile  
 4056 305 310 315 320  
 4058 Ser Cys Arg His Leu Phe Leu Gly Ala Gly Ser Leu Gly Ser Thr Glu  
 4059 325 330 335  
 4061 Leu Leu Val Arg Ala Arg Asp Thr Gly Ala Leu Pro Asp Leu Asn Ala  
 4062 340 345 350  
 4064 Glu Val Gly Ala Gly Trp Gly Pro Asn Gly Asn Ile Met Thr Gly Arg  
 4065 355 360 365  
 4067 Ala Asn His Val Trp Asn Pro Thr Gly Ala His Gln Ser Ser Ile Pro  
 4068 370 375 380  
 4070 Ala Leu Gly Ile Asp Asp Trp Asn Asn Pro Thr Ala Pro Val Phe Ala  
 4071 385 390 395 400  
 4073 Glu Ile Ala Pro Met Pro Ala Gly Leu Glu Thr Trp Val Ser Leu Tyr  
 4074 405 410 415  
 4076 Leu Ala Ile Thr Lys Asn Pro Glu Arg Gly Thr Phe Val Tyr Asp Lys  
 4077 420 425 430  
 4079 Ala Thr Asp Arg Ala Ala Leu Arg Trp Thr Arg Asp Gln Asn Thr Pro  
 4080 435 440 445  
 4082 Ala Val Asn Ala Ala Arg Ser Leu Phe Asp Arg Ile Asn Lys Ala Asn  
 4083 450 455 460  
 4085 Gly Thr Met Tyr Arg Tyr Asp Leu Phe Gly Pro Gln Leu Lys Asn Phe  
 4086 465 470 475 480  
 4088 Ser Asp Asp Phe Cys Tyr His Pro Leu Gly Gly Cys Val Leu Gly Lys

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002  
TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw  
Output Set: N:\CRF3\05212002\J018009.raw

4089	485	490	495
4091 Ala Thr Asp Gly Tyr Gly Arg Val Ala Gly Tyr His Asn Leu Tyr Val			
4092 500	505	510	
4094 Thr Asp Gly Ala Leu Ile Pro Gly Ser Ile Gly Val Asn Pro Phe Val			
4095 515	520	525	
4097 Thr Ile Thr Ala Leu Ala Glu Arg Asn Ile Glu Arg Ile Ile Ala Glu			
4098 530	535	540	
4100 Asp Val Lys Ala Ala			
E--> 4101 545	550	←	
4216 <210> SEQ ID NO: 8			
4217 <211> LENGTH: (399) 398 (p.26)			
4218 <212> TYPE: PRT			
4219 <213> ORGANISM: Streptomyces natalensis			
4221 <400> SEQUENCE: 8			
4222 Met Thr Tyr Thr Asp Pro Ala Ala Pro Glu Thr Asp Pro Pro Ala Val			
4223 1 5 10 15			
4225 Asp Phe Pro Gln Arg Lys Pro Gly Val Pro Phe Pro Pro Asp Tyr			
4226 20 25 30			
4228 Ala Asp Tyr Arg Asp Arg Lys Gly Leu Val Leu Ser Gln Leu Ser Asp			
4229 35 40 45			
4231 Gly Lys Arg Val Trp Leu Val Thr Arg His Glu Asp Val Arg Ala Val			
4232 50 55 60			
4234 Leu Thr Ser Pro Ser Ile Ser Ser Asn Pro Glu His Asp Arg Phe Arg Lys Ala Val			
4235 65 70 75 80			
4237 Asn Val Gly Asn Leu Gly Val Pro Lys Gln Asp Gln Ile Pro Gly Trp			
4238 85 90 95			
4240 Phe Val Gly Met Asp Ser Pro Glu His Asp Arg Phe Arg Lys Ala Leu			
4241 100 105 110			
4243 Ile Pro Glu Phe Thr Val Arg Arg Val Arg Ala Met Lys Pro Ala Ile			
4244 115 120 125			
4246 Glu Arg Thr Val Asp Ala Gln Leu Asp Ala Met Leu Ala Ala Gly Asn			
4247 130 135 140			
4249 Thr Ala Asp Leu Val Ala Asp Phe Ala Leu Pro Ile Pro Ser Leu Val			
4250 145 150 155 160			
4252 Ile Ser Ala Leu Leu Gly Val Pro Pro Ala Asp Arg Glu Phe Phe Glu			
4253 165 170 175			
4255 Ser Arg Thr Arg Val Leu Val Ser Leu Arg Ser Ser Thr Asp Asp Asp			
4256 180 185 190			
4258 Arg Met Ala Ala Ala Lys Asp Leu Leu Arg Tyr Ile Asn Arg Leu Val			
4259 195 200 205			
4261 Glu Ile Lys Gln Lys Trp Gly Gly Asp Asp Leu Ile Thr Arg Leu Leu			
4262 210 215 220			
4264 Ala Thr Gly Ala Ile Ala Pro His Glu Met Ser Gly Val Leu Met Leu			
4265 225 230 235 240			
4267 Leu Leu Ile Ala Gly His Glu Thr Thr Ala Asn Asn Ile Ala Leu Gly			
4268 245 250 255			
4270 Val Val Thr Leu Leu Ala Asn Pro Gln Trp Ile Gly Asp Asp Arg Ala			
4271 260 265 270			
4273 Val Glu Glu Thr Leu Arg Phe His Ser Val Ala Asp Leu Val Ser Leu			

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/10/018,009

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TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw  
Output Set: N:\CRF3\05212002\J018009.raw

4274	275	280	285
4276	Arg Val Ala Val Gln Asp Val Glu Ile Ala Gly Gln Leu Ile Lys Ala		
4277	290	295	300
4279	Gly Glu Gly Ile Val Pro Leu Val Ala Ala Asn His Asp Glu Asn		
4280	305	310	315
4282	320		
4283	Ala Phe Glu Cys Pro His Ala Phe Asp Pro Ser Arg Ser Ala Arg His		
4285	325	330	335
4286	His Val Ala Phe Gly Tyr Gly Val His Gln Cys Leu Gly Gln Asn Leu		
4288	340	345	350
4289	Val Arg Ile Glu Met Glu Val Ala Tyr Arg Lys Leu Phe Glu Arg Ile		
4291	355	360	365
4292	Pro Asn Leu Glu Leu Ala Val Pro Thr Asp Gly Leu Asp Ile Lys Tyr		
4294	370	375	380
E--> 4295	Asp Gly Val Leu Tyr Gly Leu Asn Glu Leu Pro Val Arg Trp	390	395
4410	<210> SEQ ID NO: 10	398	(P.21)
4411	<211> LENGTH:	399	
4412	<212> TYPE: PRT		
4413	<213> ORGANISM: Streptomyces natalensis		
4415	<400> SEQUENCE: 10		
4416	Met Thr Ala Ala Ser His Asp Leu Pro Cys Leu Asn Leu Glu Pro Pro		
4417	1	5	10
4419	15		
4420	Lys Met Leu Lys Leu Ser Pro Leu Leu Arg Ala Leu Gln Asp Arg Gly	20	25
4422	30		
4423	Pro Ile His Arg Val Arg Thr Pro Ala Gly Asp Glu Ala Trp Leu Val	35	40
4425	45		
4426	Thr Arg His Ala Glu Leu Lys Gln Leu Leu His Asp Glu Arg Ile Gly	50	55
4428	60		
4429	Arg Thr His Pro Asp Pro Pro Ser Ala Ala Gln Tyr Val Arg Ser Pro	65	70
4431	80		
4432	Phe Leu Asp Leu Leu Ile Ser Asp Ala Asp Ala Glu Ser Gly Arg Arg	85	90
4434	95		
4435	Gln His Ala Glu Thr Arg Arg Leu Leu Thr Pro Leu Phe Ser Ala Arg	100	105
4437	110		
4438	Arg Val Leu Glu Met Gln Pro Lys Val Glu Glu Ala Ala Asp Thr Leu	115	120
4440	125		
4441	Leu Asp Ala Phe Ile Ala Gln Gly Pro Pro Gly Asp Leu His Gly Glu	130	135
4443	140		
4444	Leu Thr Val Pro Phe Ala Leu Thr Val Leu Cys Glu Val Ile Gly Val	145	150
4446	160		
4447	Pro Pro Gln Arg Arg Ala Glu Leu Thr Thr Leu Leu Ala Gly Ile Ala	165	170
4449	175		
4450	Lys Leu Asp Asp Arg Glu Gly Ala Val Arg Ala Gln Asp Asp Leu Phe	180	185
4452	190		
4453	Gly Tyr Val Ala Gly Leu Val Glu His Lys Arg Ala Glu Pro Gly Pro	195	200
4455	205		
4456	Asp Ile Ile Ser Arg Leu Asn Asp Gly Glu Leu Thr Glu Asp Arg Val	210	215
4458	220		
	Ala His Leu Ala Met Gly Leu Leu Phe Ala Gly Leu Asp Ser Val Ala		

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002  
TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw  
Output Set: N:\CRF3\05212002\J018009.raw

4459 225                    230                    235                    240  
4461 Ser Ile Met Asp Asn Gly Val Val Leu Leu Ala Ala His Pro Asp Gln  
4462                    245                    250                    255  
4464 Arg Ala Ala Ala Leu Ala Asp Pro Asp Val Met Ala Arg Ala Val Glu  
4465                    260                    265                    270  
4467 Glu Val Leu Arg Thr Ala Arg Ala Gly Gly Ser Val Leu Pro Pro Arg  
4468                    275                    280                    285  
4470 Tyr Ala Ser Glu Asp Met Glu Phe Gly Gly Val Thr Ile Arg Ala Gly  
4471                    290                    295                    300  
4473 Asp Leu Val Leu Phe Asp Leu Gly Leu Pro Asn Phe Asp Glu Arg Ala  
4474 305                    310                    315                    320  
4476 Phe Thr Gly Pro Glu Glu Phe Asp Ala Ala Arg Thr Pro Asn Pro His  
4477                    325                    330                    335  
4479 Leu Thr Phe Gly His Gly Ile Trp His Cys Ile Gly Ala Pro Leu Ala  
4480                    340                    345                    350  
4482 Arg Leu Glu Leu Arg Thr Met Phe Thr Lys Leu Phe Thr Arg Leu Pro  
4483                    355                    360                    365  
4485 Glu Leu Arg Pro Glu Leu Pro Val Glu Gln Leu Arg Leu Lys Glu Gly  
4486                    370                    375                    380  
4488 Gln Leu Ser Gly Gly Phe Ala Glu Leu Arg Val Val Trp ←  
E--> 4489 385                    390                    395  
4532 <210> SEQ ID NO: 14  
4533 <211> LENGTH: 20  
4534 <212> TYPE: DNA  
4535 <213> ORGANISM: Artificial Sequence  
4537 <220> FEATURE:  
4538 <223> OTHER INFORMATION: Description of Artificial Sequence: Reverse primer ORF1  
4540 <400> SEQUENCE: 14  
4541 gcatgagcgt ggaaattccg                    20  
E--> 4553 (50) *delete*

VERIFICATION SUMMARY  
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002  
TIME: 15:49:30

Input Set : N:\jumbos\huge\10018009.raw  
Output Set: N:\CRF3\05212002\J018009.raw

L:10 M:270 C: Current Application Number differs, Replaced Application Number  
L:11 M:271 C: Current Filing Date differs, Replaced Current Filing Date  
L:691 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2  
M:332 Repeated in SeqNo=2  
L:844 M:252 E: No. of Seq. differs, <211> LENGTH:Input:1848 Found:1847 SEQ:2  
L:2757 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:4  
M:332 Repeated in SeqNo=4  
L:3837 M:252 E: No. of Seq. differs, <211> LENGTH:Input:6798 Found:6797 SEQ:4  
L:3989 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:5  
L:4101 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:6  
L:4101 M:252 E: No. of Seq. differs, <211> LENGTH:Input:550 Found:549 SEQ:6  
L:4295 M:252 E: No. of Seq. differs, <211> LENGTH:Input:399 Found:398 SEQ:8  
L:4489 M:252 E: No. of Seq. differs, <211> LENGTH:Input:398 Found:397 SEQ:10  
L:4553 M:254 E: No. of Bases conflict, this line has no nucleotides.